



Air Quality Summary—September 2012



Baton Rouge Area

OZONE

There were three (3) days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in the Baton Rouge area during the month of September, 2012. Please see the table below for details and the graph on page two for daily air quality index levels in the Baton Rouge area during September.

There were no air quality action days during the month of September.

PM_{2.5}

There were no violations of the NAAQS for PM_{2.5} in the Baton Rouge area during the month of September, 2012. Please see the chart and table on the next page for detailed information on PM_{2.5} levels throughout the state.

Other Areas of the State

OZONE

There were two days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in areas of the state other than Baton Rouge during the month of September, 2012. Please see the table below for details.

There were no air quality action days during the month of September.

PM_{2.5}

There were no violations of the NAAQS for PM_{2.5} during the month of September, 2012. Please see the chart and table on the next page for detailed information on PM_{2.5} levels throughout the state.

**Note: Hurricane Isaac made landfall in the pre-dawn hours of 8/29/12, causing power outages throughout the state. The data set used in this report is missing data from those sites without power during the beginning of the month.*

Statewide 8-HR Ozone Readings Above 75 ppb - September 2012

DATE	AQI	8-HR OZONE Concentration (ppb)	MONITORING SITE
9/21/2012	101	76	New Roads
9/22/2012	116	82	Shreveport Airport
9/25/2012	124	85	New Roads
	104	77	Garyville
9/26/2012	104	77	New Roads



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Good

Moderate

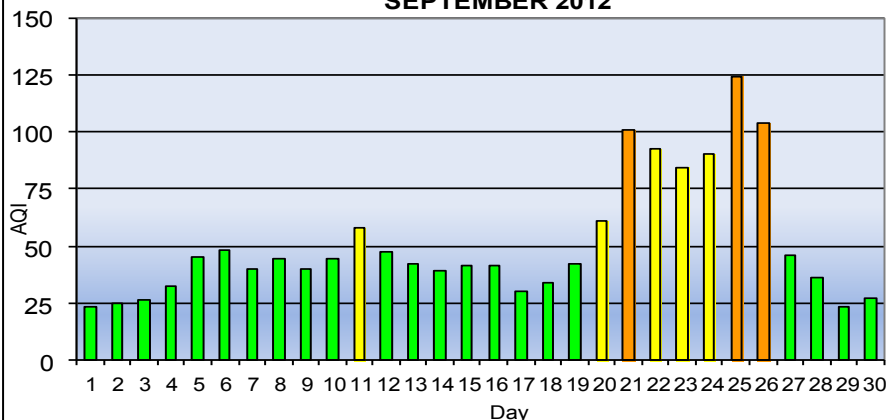
Unhealthy for Sensitive Groups

Unhealthy

Very Unhealthy

Hazardous

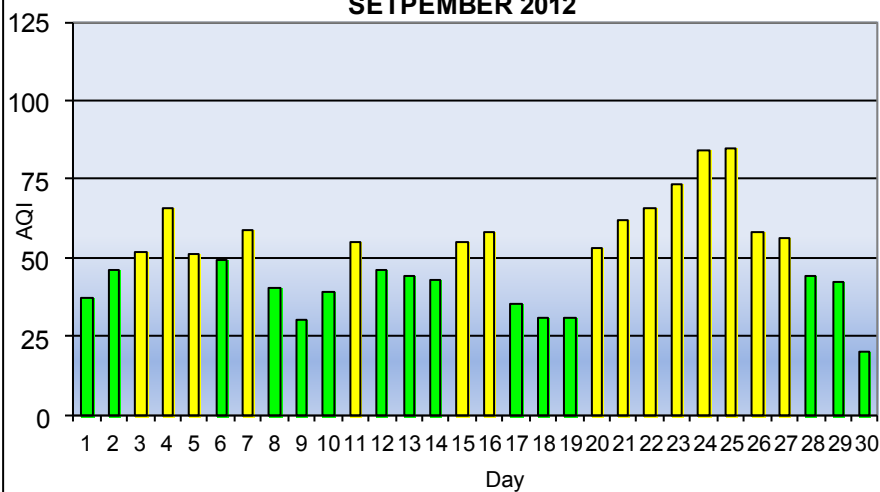
**Baton Rouge Area Daily Maximum AQI For Ozone
SEPTEMBER 2012**



Statewide High PM_{2.5} 24-Hour Average Readings - SEPTEMBER 2012

DAY	UG/m3	AQI	SITE
1	11.4	37	Port Allen
2	14.3	46	Alexandria
3	16	52	Alexandria, Monroe
4	21.4	66	Alexandria
5	15.5	51	City Park
6	15	49	Monroe
7	18.8	59	Alexandria
8	12.2	40	City Park
9	9.1	30	City Park
10	11.9	39	Port Allen
11	17.1	55	Port Allen
12	14.1	46	Monroe
13	13.7	44	Kenner
14	13.2	43	Port Allen
15	17.3	55	Lafayette
16	18.4	58	Alexandria
17	10.8	35	Alexandria
18	9.6	31	Alexandria, Westlake
19	9.6	31	City Park
20	16.3	53	Port Allen
21	20.1	62	Capitol
22	21.4	66	Capitol
23	24.6	73	Chalmette Vista
24	28.9	84	Chalmette Vista
25	29.2	85	Capitol
26	18.4	58	Monroe
27	17.4	56	Alexandria
28	13.7	44	Alexandria
29	13	42	Monroe
30	6.3	20	Kenner

**Statewide Daily Maximum AQI For PM_{2.5}
SEPTEMBER 2012**



**Note: Hurricane Isaac made landfall in the pre-dawn hours of 8/29/12, causing power outages throughout the state. The data set used in this report is missing data from those sites without power during the beginning of the month.*

Baton Rouge Climate Summary—September 2012

**Prepared by: Jay Grymes*

(based on available preliminary data as of October 11, 2012)

September 2012's monthly average temperature for Baton Rouge's Metro Airport (AP) was 78.2°F, a modest 0.4° below normal. September is the second consecutive month -- and only the second month of 2012 -- with a below-normal average monthly temperature for Metro AP. 2012 remains on track to become the "warmest" year on record for Baton Rouge: the year-to-date (Jan-Sep) temperature averages 73.1°F, ranking as the "warmest" first nine months of any year (since at least 1930), and 0.4° higher than the same period in 1990, the previous record-holder.

Although September's monthly average temperature was below-normal, daily temperatures were only below-normal for one-third of the days during the month. However, Canadian cold fronts were responsible for five days with average daily temperatures running as much as 5° to 8° below normal. Indeed, the significantly cooler-than-normal weather during those five days effectively offset the minor positive daily departures recorded during most of the remainder of September. (Summer fronts are uncommon, and September traditionally marks the return of frequent frontal passages for the Bayou State. But as is often the case during the early fall, some of these tend to be "dry" fronts, delivering a welcomed cool-down but often passing without generating significant rainfall.)

September daily maximum temperatures averaged 88.1°F, 0.6° below the monthly norm. Daily maximums reached the 90°s on 14 dates, including the first eight days of the month. Yet highs 'hit' 96° on the 6th and 94° on the 7th, delivering a "summertime feel" to the air during September's first week. Thankfully, that early September heat was broken by the month's first Canadian cool front, with highs topping-out in the mid 80°s on the 9th and 10th. September daily minimums averaged a comfortable 68.4°F, near-normal for the month. That same summer feel of the month's first week was augmented by daily minimums during the period in the mid to upper 70°s; area residents had to wait for that first Canadian cool front for lows to drop into the 60°s. September's "coolest" morning for Baton Rouge occurred on the 20th, with the month's first (and only) low in the 50°s.

Table 1: Average "daylight hours" sky conditions (to 12,000 ft) during September 2012, based on automated ASOS observations from Baton Rouge's Metro Airport.

Sky Condition: Sunrise to Sunset (Sky Coverage)	Clear to Mostly Sunny (0/10ths – 3/10ths)	Partly Cloudy / Partly Sunny (4/10ths – 6/10ths)	Mostly Cloudy to Cloudy (7/10ths – 10/10ths)
No. Days	21	7	2

Of the 21 of "fair weather" days during September, five were classified as "clear sky" days (through the daylight period) with another nine days estimated as having only 1/10th cloud cover. Showers and clouds on September 17-18 resulted in a "sun/cloud mix" for those two days (average daily sky-cover estimated at 6/10ths), while wet weather at month's end accounted for both of September's mostly- cloudy days (both days estimated at 9/10ths coverage).

September daily sunrise-to-sunset periods for Baton Rouge ranged from 12.8 hours (September 1) to 11.9 hours (September 30), with the fall equinox occurring on the 22nd.

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Table 2: September 2012 rainfall for selected sites across the greater Baton Rouge metro area. (Data are preliminary and provided courtesy of the National Weather Service, the LSU Southern Regional Climate Center, the LSU AgCenter, and the CoCoRaHS Volunteer Network.)

Rainfall-Recording Site	Monthly Rainfall	Monthly DFN	No. Days ≥ 0.01"	No. Days ≥ 1.00"
<i>NWS Cooperative Network Sites</i>				
BR – Metro Airport	5.41"	+0.87"	7	3
BR - Concord Estates	2.91"	-1.85"	5	2
BR - Sherwood Forest	5.31"	+0.73"	8	3
Clinton	3.20"	-0.90"	5	1
Denham Springs	4.89"	+0.45"	8	1
Dutchtown	4.92"	--	8	2
Gonzales	5.79"	+1.30"	8	2
Livingston	7.16"	+2.53"	7	2
New Roads	6.61"	+2.36"	8	2
Oaknolia	3.45"	-1.19"	8	1
Plaquemine	4.59"	-0.09"	8	2
Port Allen	5.88"	+1.41"	6	3
St. Francisville	5.94"	+1.44"	8	3
St. Gabriel	3.37"	-1.07"	9	1
<i>CoCoRaHS Volunteer Observers</i>				
Baton Rouge 2.7 SW (LA-EB-2)	4.12"	--	5	3
Baton Rouge 3.5 E (LA-EB-14)	5.31"	--	7	3
Baton Rouge 2.5 E (LA-EB-27)	5.09"	--	7	2
Baton Rouge 4.3 S (LA-EB-41)	3.82"(i)	--	--	--
Baton Rouge 1.4 WSW (LA-EB-46)	4.39"	--	5	1
Baton Rouge 5.3 S (LA-EB-47)	3.14"	--	4	2
Baton Rouge 2.1 S (LA-EB-48)	2.91"	--	5	2
Brownfields 5.8 NE (LA-EB-9)	5.99"	--	8	2
Inniswold 2.8 S (LA-EB-42)	4.73"(i)	--	--	--
Monticello 3.0 ENE (LA-EB-19)	5.76"	--	7	2
Monticello 3.0 SSW (LA-EB-20)	3.43"(i)	--	--	--
Monticello 4.6 NNE (LA-EB-31)	6.38"	--	6	3
Shenandoah 2.1 W (LA-EB-18)	3.71"	--	8(e)	2
Shenandoah 1.5 E (LA-EB-22)	3.97"(i)	--	--	--
Shenandoah 0.8 W (LA-EB-36)	4.02"(i)	--	--	--
Zachary 3.5 WNW (LA-EB-28)	4.76"	--	6	2
Gonzales 4.0 S (LA-AS-5)	5.37"	--	8	1
Gonzales 1.8 NE (LA-AS-9)	4.23"(i)	--	--	--
Prairieville 1.8 NW (LA-AS-10)	3.12"(i)	--	--	--
Port Vincent 4.4 W (LA-AS-2)	7.76"	--	7	4
Wakefield 0.9 WNW (LA-WF-4)	2.93"	--	6(e)	0
<i>Additional Metro Area Sites</i>				
LSU Campus (LA-EB-33)	2.97"	--	7	1
WAFB-TV, Downtown BR	5.72"	--	6	2
LSU AgCenter Ben Hur Farm	3.20"	--	8	2

DFN - Departure-from-Normal , "--" - Normals Not Available , M - Missing Value

(e) - Estimated Value , (i) - Incomplete Total

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(based on available preliminary data as of October 11, 2012)

Baton Rouge Metro AP's rainfall for September totaled 5.41", less than 1" above the 30-year norm. A look at Fig. 1 and a review of daily rainfall reports from metro area sites shows that the majority of the month's rains fell during the final days of September. Indeed, other than some 1" to 2" rains on Sep 17-18, the month was rather dry prior to the monthly-ending 3-day rain event.

Table 3: Distribution of September 2012 rain totals based on sites (Table 2) with complete monthly records for the month (31 sites).

No. Stations	No. Stations	No. Stations	No. Stations	No. Stations
≤ 3.00"	3.01" - 4.00"	4.01" - 5.00"	5.01" - 6.00"	> 6.00"
4	6	6	11	4

Tables 2 and 3 indicate only a moderate range of monthly rain totals, with Metro AP falling within the upper-half of the distribution. Station data suggest no clear-cut rainfall gradient across the metro area for September, as both "driest" (≤ 3.0") and "wettest" (≥ 6.0") sites were scattered randomly across the region.

Based on the 31 sites included in Table 3 (with complete monthly totals), the metro area regional rainfall for September 2012 averaged 4.80", with a median of 4.92" -- both values less than one-half-inch above the 30-year norm. Of the 13 NWS Cooperative sites with long-term normals, 4 recorded monthly totals more than 1" above normal while 3 reported rainfall more than 1" below the norm.

Most metro area sites recorded measurable rainfall on 5 to 8 days during September, and averaged 2 days with totals of 1" or more. *All in all, from a monthly perspective, September's rains were "just about average" for the region.*

September 2012 reports from the Baton Rouge Metro Airport ASOS (Automated Surface Observation system) weather platform included:

- 4 days with thunder (Sep 5, 13, 16, & 27), below the long-term average for the month (6-7 days);
- 17 days with fog, including two days -- Sep 27 & 28 -- with brief spells of early morning "dense" fog (visibility under 1/4-mile); and
- 5 days (Sep 7, 22, 24, 25 & 28) with smoke and/or haze.

Daily winds at Metro Airport during September 2012 averaged 4.2 mph, compared to a 28-year September average of 5.5 mph. There were no days during the month when daily winds averaged above 10 mph; in fact, there were only 7 days when daily winds averaged above 5.0 mph. Light winds were more the rule than the exception from Sep 6th through the 29th, a period which included 7 days when daily winds averaged less than 3.0 mph (essentially 'calm' conditions). Yet even with the persistence of light winds throughout most of September, peak daily winds included brief gusts to 20 mph or more on 17 days, with maximum gusts topping 30 mph on Sep 17th and 30th.

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Tropical Review:

September is traditionally the most active of all months in terms of tropical activity in the Atlantic Basin, with the “climatological peak” of historical activity occurring on or about September 10th. But after the record-tying storms development during August 2012 (with 8 ‘named’ systems forming in the basin), only two ‘named’ storms developed during September: **Michael** (the only ‘major’ hurricane thus far for 2012) and the seemingly never-ending **Nadine**.

Louisiana residents were still reeling from the effects of **Isaac** at the start of September, but by the 1st of the month, **T.D. Isaac** had moved well north of the Bayou State and was fizzling out over Missouri. August’s **Kirk** and **Leslie** were also still active over the Atlantic as we entered September. As of September’s close, 2012 U.S. landfalls included **Beryl** and **Debby** (over Florida), with **Isaac** being the nation’s only land-falling hurricane.

Extended Outlook:

NWS Climate Prediction Center (CPC) forecasts as of early October for the fall and early winter (November thru-January, NDJ) continue to project a high likelihood for ‘near-normal to above-normal’ rainfall for the greater Baton Rouge area and all of south Louisiana. In fact, the forecast calls for roughly a 50-50 chance for “significantly” wetter-than-normal weather over the three-month period. The NDJ outlook for temperature currently indicates “equal chances” for below-normal, near-normal and above-normal average temperatures over the three-month period.

A primary factor for the projection for “wet” conditions over the coming months was the anticipated onset of *El Niño*. *El Niño* is one of three ‘phases’ associated with ENSO (*El Niño*/Southern Oscillation); it is identified by the development of significantly warmer-than-normal waters (the ‘warm’ phase of ENSO) along the eastern equatorial Pacific and the associated atmospheric responses linked to that thermal oceanic anomaly. History shows that a majority of winters and springs are wetter-than-normal across south Louisiana when an *El Niño* is present during that time.

During the latter half of the 2012 summer, computer modeling and expert consensus called for the development of *El Niño* conditions during the fall. However, more recent observations have cast some doubt as to whether a fully-developed *El Niño* is going to emerge after all: sea-surface temperatures in key *El Niño* sectors of the Pacific have displayed some minor cooling, warming has not extended to ocean depths normally expected, and the atmospheric patterns have yet to demonstrate the anticipated adjustments expected during an ENSO ‘warm’ phase.

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Figure 1: September 2012 *Daily Maximum and Minimum Temperatures and Precipitation* from the Baton Rouge Metro Airport ASOS.

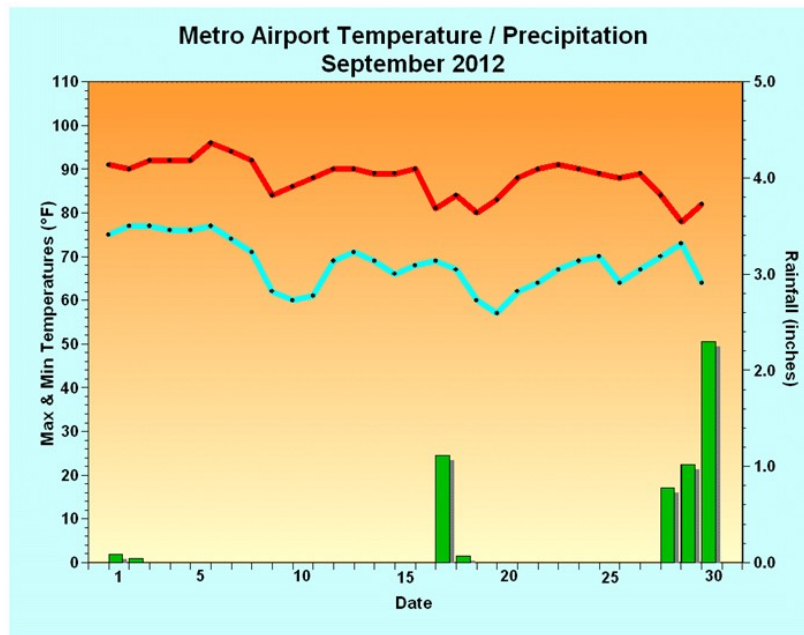
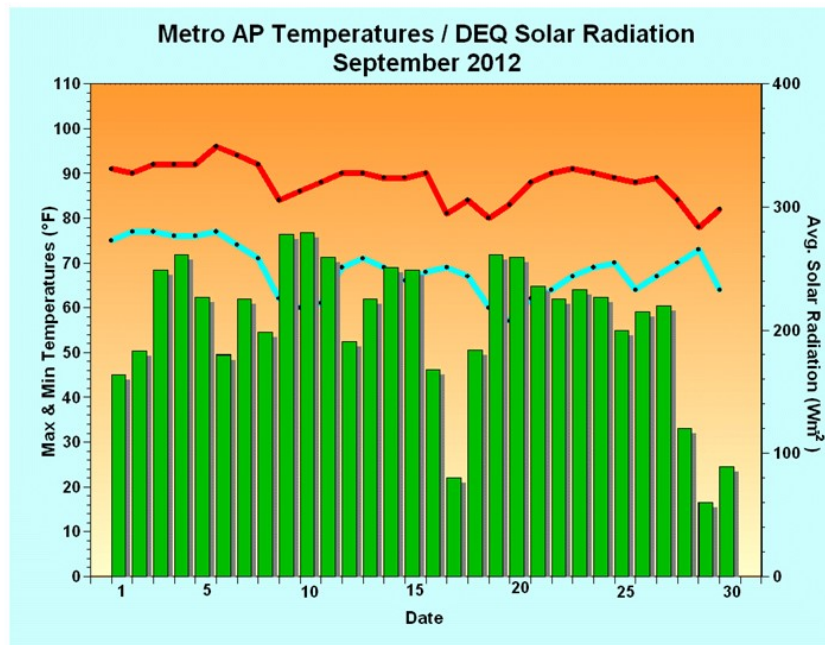


Figure 2: September 2012 *Daily Average Hourly Solar Radiation* as recorded at DEQ's Capitol site and *Daily Maximum and Minimum Temperatures* from the Baton Rouge Metro Airport ASOS.



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Figure 3: Weekly **U.S. Drought Monitor** depiction for 2 October 2012.

Source: <http://drought.unl.edu/DM/>

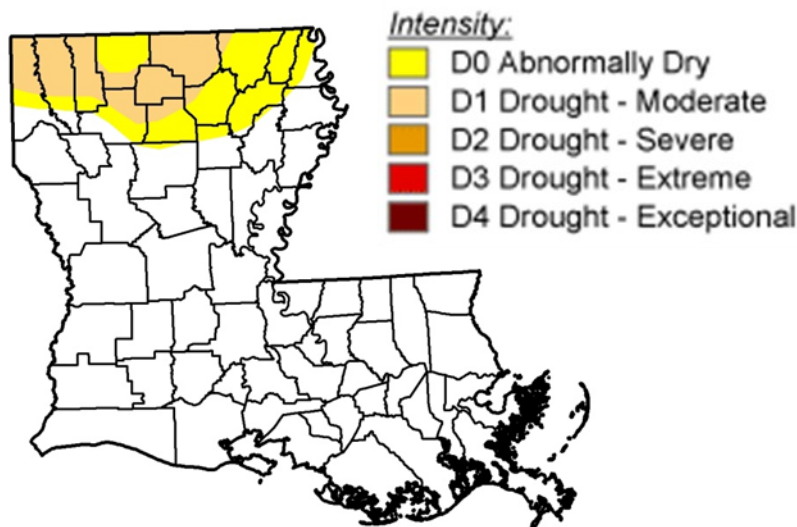


Table 4: September 2012 significant Preliminary 'Local Storm Reports' as posted by the NWS/SPC for the greater Baton Rouge metro area.

Date	Time (CDT)	Event	Location	Parish
--	--	** No Reports **	-----	--

Acknowledgements:

- National Weather Service offices serving Louisiana
- LSU Southern Regional Climate Center (SRCC)
- Louisiana Office of State Climatology (LOSC)
- LSU AgCenter / LAIS AgWeather Monitoring Program
- CoCoRaHS Volunteer Network
- U.S. Drought Monitor (<http://drought.unl.edu/DM/>)
- NWS Climate Prediction Center (NWS/CPC)
- NWS Storm Prediction Center (NWS/SPC)
- NWS Hydrometeorological Prediction Center (NWS/HPC)
- NOAA/National Climatic Data Center (NCDC)
- WAFB-TV (Ch. 9), Baton Rouge

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*Jay Grymes, LSU AgCenter Climatologist and WAFB Chief Meteorologist, provides the climatology portion of this report as a free service to DEQ and the citizens of Louisiana.